1. SCOPE

This specification applies to the TEAC CD-532E CD-ROM drive (hereinafter referred to as the unit or CD-ROM drive).

2. GENERAL

Table 2-1 shows the general specifications of this CD-ROM drive.

(Table 2-1) General specifications

Model name	CD-532E
Applicable safety standards	UL/CSA/TÜV
Data transfer rate	16.6M bytes/sec max.
Average access time	85msec typ., by TEAC standard
Disc rotational speed	Approx. 6,850rpm
Signal interface	IDE (ATAPI)
Power supplies	+5VDC, +12VDC
Loading mechanism	Disc tray
Starting time	9sec typ., by TEAC standard
Applicable disc	CD-DA, CD-ROM Mode 1, CD-ROM XA Mode 2 (Form 1, Form 2), Multi-session Photo CD, CD-I, Video CD, CD PLUS, CD-RW
Front bezel and flap	Light gray
Eject button	Light gray
LED indicator color	Green
Audio headphone Line-out	0.65 ± 0.5V at 32Ω 0.85 ± 0.3V at 47kΩ
Factory-preset strap setting: Drive setting	 Master

3. STRUCTURE

3.1 External Structure

(1) Dimensions
(a) Height : 41.3mm (1.63 in), typ.
(b) Width : 146mm (5.75 in), typ.
(c) Depth : 192mm (7.56 in), typ.
Note: With (a) to (c), the front bezel is not included.

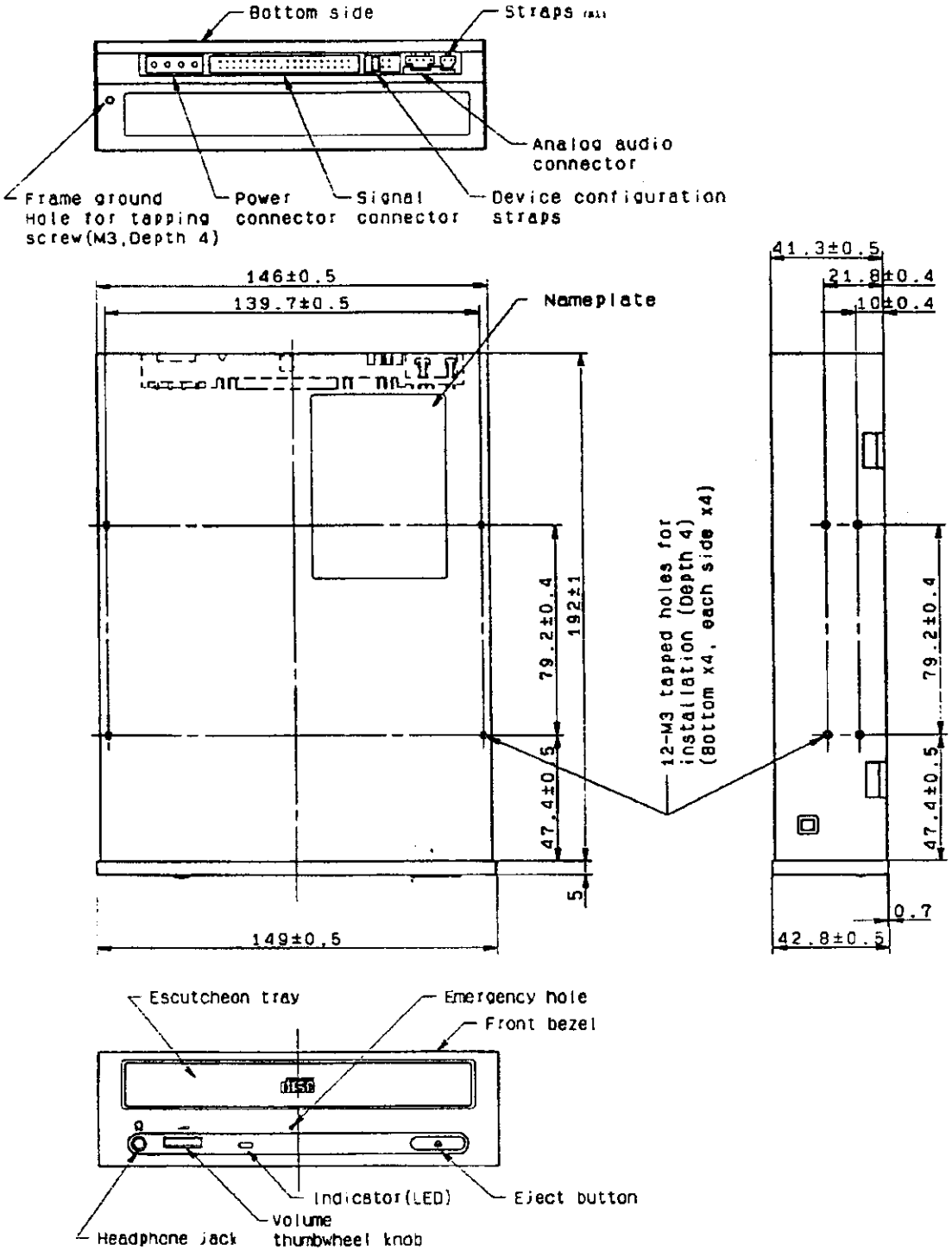
(2) Weight : 1,150g (2.53lbs), typ.

(3) External view : Refer to Fig.3.1-1.

3.2 Installation

(1) Installation direction: Should be the following two.
(a) Direction in which the disc is horizontal
Direction in which the indicator on the front panel should come to the right. Tolerance of parallelism should be within 10° in all directions.
(b) Direction in which the disc is vertical
Tolerance of parallelism should be within 10° in all directions.

(2) Installation method : Use the fixing holes in the sides or bottom of the CD-ROM drive (Refer to Fig.3.1-1.).



(Fig.3.1-1) External view of the unit

5. ENVIRONMENTAL CONDITIONS

The environmental conditions mentioned in this section are for the CD-ROM drive without a disc. The environmental conditions of the disc should comply with the standards specified for the applicable disc.

(1) Ambient temperature
- (a) Operating : 5 ~ 45°C (41 ~ 113°F)
- (b) Storage and transportation (packed) : -30 ~ 55°C (-22 ~ 131°F)

(2) Temperature gradient
- (a) Operating : 12°C (53.6°F) or less per hour (non-condensing)
- (b) Storage and transportation : 25°C (77°F) or less per hour (non-condensing)

(3) Relative humidity
- (a) Operating : 20 ~ 80% (non-condensing)
  Max. wet bulb temperature; 29°C (84.2°F) or less
- (b) Storage : 10 ~ 80% (non-condensing)
- (c) Transportation (packed) : 5 ~ 90% (non-condensing)
  Max. wet bulb temperature; 32°C (89.6°F) or less

(4) Vibrations
- (a) Operating : 0.3G or less (5 ~ 300Hz)
- (b) Storage : 2G or less (5 ~ 100Hz)
- (c) Transportation (packed) : 0.75G or less (JIS Z 0200)

(5) Shock
- (a) Operating : 5G or less (half-sine wave, 11msec) excepting CD-DA play mode.
  No read error under retry operation.
  Intervals between shocks should be 10sec or more.
- (b) Storage : 50G or less (half-sine wave, 11msec)
- (c) Transportation (packed) : 50G or less

(6) Acoustic noise
- (a) Operating : 45dBA or less (at distance of 0.5m)
  (except at eject and loading operation)

(7) The transportation conditions should comply with JIS Z 0200 appropriate transport packaging test method level II when the specified packaging box is used.

(8) Dust
Should be as in an ordinary office environment.

(9) Cleaning
The wet-type lens cleaner should not be used as it may cause damage.

6. RELIABILITY

(1) Mean time between failures (MTBF) : 100,000POH or more (Duty 10%)

(2) Mean time to repair (MTTR) : 30 minutes, typical

(3) Error rate

(a) Data read error rate : Block/10^{12} bit (MODE 1 and MODE 2 Form 1)
Block/10^{9} bit (MODE 2 Form 2 and CD-DA)

(4) Safety standards

(a) Approved by the UL standards.

(b) Approved by the CSA standards.

(c) Approved by the TÜV standards.

TEAC

CD-ROM DRIVE 32X

Installation Guide
Model CD-532E
IDE/ATAPI Interface

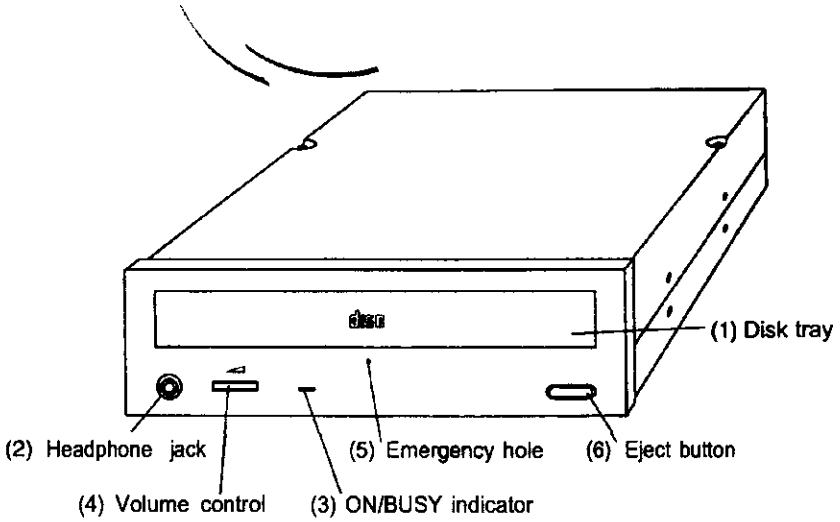


Figure A

---

(1) Disk Tray: Opens and closes during loading and unloading.

(2) **Headphone Jack (3.5mm):** Audio output jack for stereo headphone or external speakers. Use a 3.5mm-diameter stereo mini-plug.

(3) **ON/BUSY Indicator:** Indicates Seek, Play or Read operation.

(4) **Volume Control:** Adjusts headphone's volume.
Right to increase — Left to decrease.

(5) **Emergency Eject Hole:** When power is switched OFF or the eject button does NOT function, insert a metal rod (an extended large paper clip with diameter of 1.2mm or less is suitable) into this hole at a right angle to the front panel, then push the rod to eject the disk. **Do this only when the ON/BUSY indicator is NOT lit.**

(6) Eject Button: Press this button to open or close the disk tray.

Introduction

PLEASE READ THE ENTIRE INSTALLATION GUIDE THOROUGHLY BEFORE YOU BEGIN THE INSTALLATION.

Thank you for purchasing the TEAC 32X speed CD-ROM drive. This product is designed to provide maximum CD-ROM playback performance, enjoyment and ease of use. Refer to Recommended System Requirements to insure the drive's proper 32X Max performance.

The TEAC 32X speed CD-ROM Drive can read certain data 12 to 32 times faster than conventional speed CD-ROMs. It also plays 8X, 4X and 2X titles at their respective speeds. It is easy to operate, dust proof, and features a convenient power tray for disk loading.

Note: Performnunce may vary depending on system CPU speed and system settings.

Tools You May Need

Depending on the design of your computer, you may need the following tools to complete the installation.

- ☑ a flat blade screwdriver
- ☐ a Phillips screwdriver
- ☐ needle-nosed pliers

Recommended System Requirements:

- Pentium® 133MHz or higher model IBM PC or compatible.
- Intel Triton or compatible chip set with PIO mode 4 or DMA mode 1 settings.
- 4MB RAM-minimum.
- Available half-height drive bay.
- Standard or enhanced IDE/ATAPI adapter card or a sound card with an IDE/ATAPI CD-ROM drive interface.
- DOS version 6.0 or higher.
- MSCDEX.EXE 2.23 or higher if not running MS-DOS 6.0 or higher.
- Windows@ 3. lx, Windows 95 or Windows NT.

Drive Installation Directions

The TEAC 32X CD-ROM drive can be mounted into your personal computer either horizontally or vertically. Install the drive horizontal so that the eject button is located on the right side of the unit. See Figure B. For vertical installation, the drive unit can be installed in both directions.

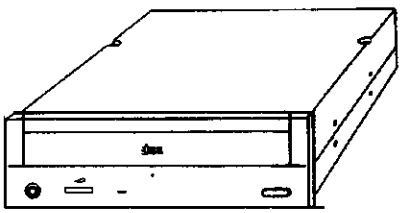


Figure B

Installing the TEAC CD-532E 32X CD-ROM drive

CAUTION: TURN OFF YOUR COMPUTER AND UNPLUG IT FROM THE AC POWER SOURCE BEFORE INSTALLING THE CD-ROM DRIVE. **FAILURE TO** DO SO MAY RESULT IN ELECTRIC SHOCK.

1. Unplug your computer.
2. Detach ail input and output devices from your computer, such as printer, keyboard, monitor, etc.
3. Remove the cover from your computer. Refer to your computer system manual for this procedure.
4. Connect the CD-ROM drive in daisy chain with an IDE hard drive or to an available IDE connector on your system.
5. If you are using a Sound Blaster™ compatible sound card, connect your CD-ROM drive to the IDE/ATAPI interface connector. Use a standard IDE 40 pin flat ribbon cable to make this connection.
6. Your TEAC CD-ROM drive requires an IDE/ATAPI audio cable for the audio output connection to the sound card.
7. Install the CD-ROM drive into an available drive bay.
8. Connect the power cable, the IDE/ATAPI 40 pin interface cable, and the audio cable to the CD-ROM drive, respectively. Be sure pin #1 on all cable connectors matches with drive and card connectors.
9. Configure your CD ROM drive for master or slave. See Figure E.

Rear View of the CD-532E

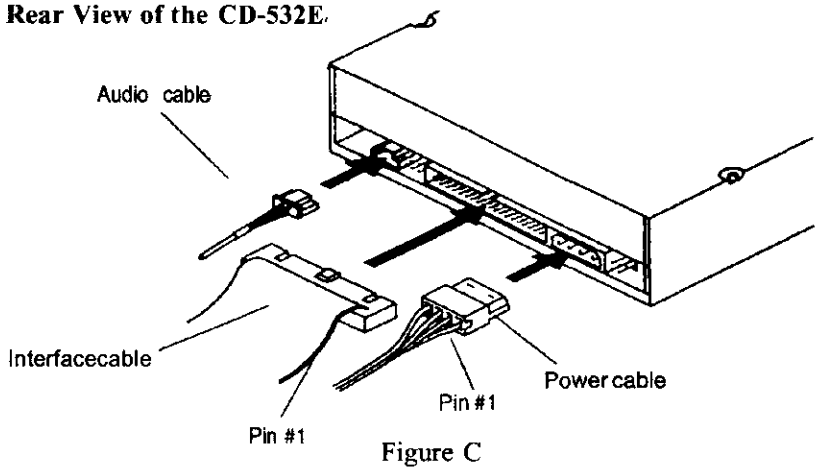
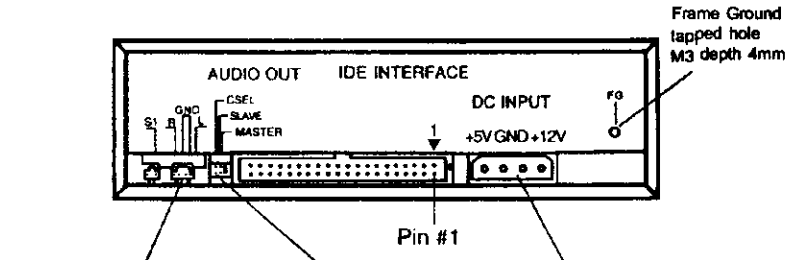


Figure C

Note: Be sure to run the TEAC software installation and select the proper set up options for DOS or Windows® 3.1x. This drive is Windows® 95 plug and play compatible. There is no need to run software installer under Windows® 95.

Rear View of the CD-532E



Pin No.	Audio signal
1	L signal
2	L ground
3	R ground
4	R signal

Pin No.	Power
1	+ 12VDC
2	0V
3	0V
4	+ 5VDC

Figure D

Audio Output Connector (For stereo audio signal output)
When driving external speakers, connect the audio output connector to the audio input connector on the sound card or interface card using the audio cable. See pin assignments above.

Device Configuration Jumper Matrix

The jumpers determine the device configuration of the CD-532E.

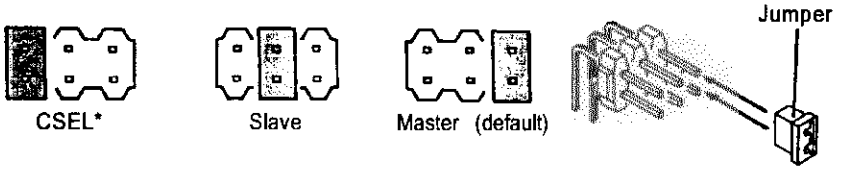


Figure E

When making a daisy chain connection with the hard disk drive, be sure to change the jumper to the "slave" position and connect your CD-ROM drive to the middle connector on your existing hard drive interface cable.

*With jumper on the CSEL position, the CD-ROM drive can be configured as either "master" or "slave" using "software" controls.

CD-ROM Disk Handling

When removing a CD-ROM disk from its protective case or loading a disk to a drive, hold it by its center hole and outer edge. Avoid touching the disk's data surface (non-labeled side).

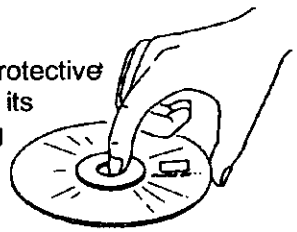


Figure F

To protect the disk against scratches and dirt when not in use, keep it in its protective case.

CD-ROM Disk Loading

(1) Press the eject button on the CD-ROM drive to eject the disk tray.
(2) Place the disk on the tray with its labeled side facing up.
(3) Press the eject button or gently press the front of the disk tray to retract the tray back into the drive.

CD-ROM Disk Ejection

(1) Press the eject button on the CD-ROM drive to eject the disk tray.
(2) Remove the disk from the tray and put it in its protective case.
(3) Press the eject button or gently press the front of the disk tray to retract the tray back into the drive.

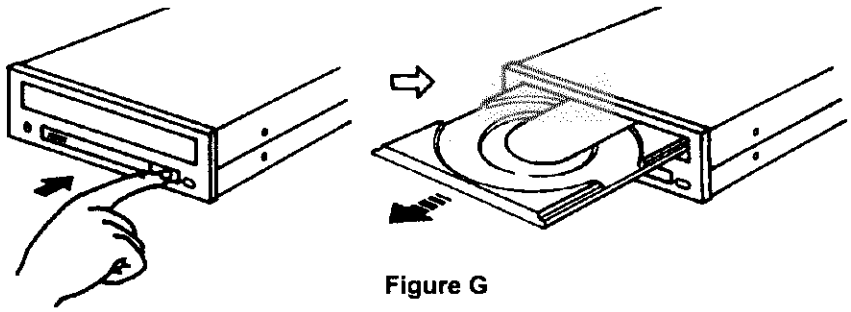


Figure G

TEAC®

SOFTWARE INSTALLATION GUIDE

CD-ROM DRIVE 32X

CD532E

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Technical Support 6-1

CAUTION:
Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

The user who makes changes or modifications to the unit or operating procedures specified herein without express written approval by the manufacturer will void the warranty.

Specifications and features subject to change without prior notice or obligation.

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PRE-INSTALLATION

Recommended System Requirements:

- Pentium® 133MHz or higher model IBM PC or compatible.
- Intel Triton or compatible chip set with PIO mode 4 or DMA mode 1 settings.
- 850KB available hard disk space for software installation.
- 4MB RAM — minimum.
- 3.5", 1.44MB floppy drive.
- Available half-height drive bay.
- Standard or enhanced IDE/ATAPI adapter card or a sound card with an IDE/ATAPI CD-ROM drive interface.
- DOS version 6.0 or higher.
- MSCDEX.EXE 2.23 or higher if not running MS-DOS 6.0 or higher.
- Windows® version 3.1X, Windows 95 or Windows NT.

Note: The installation software included is only for MS-DOS 6.0 or higher and Windows 3.1X. For operating systems such as Windows 95, Windows NT, and OS2 WARP, the built-in IDE driver will be used!

WINDOWS 95 INSTALLATION

The TEAC 32X CD-ROM drive model CD-532E is Windows 95 and Windows NT plug and play compatible. Windows will recognize and configure the CD-ROM drive automatically. There is no need to run the CD-ROM installation software to operate this drive under Windows 95 or Windows NT.

If your Windows 95 is an OSR2 (release 2), please enable DMA support for CD-ROM speed enhancement.

DOS AND WINDOWS 3.1X INSTALLATION

Insert the TEAC installation disk into the floppy disk drive. At the A:> or B:> prompt, type this command to start the installation program:

A: \INSTALL [Press Enter]

A menu driven installation screen will appear. Please strike ENTER to use the default drive and directory or simply type in your desired drive . If you specify a directory name that does not currently exist, it will be created automatically. (See figure 1)

TEAC CD-ROM Software Installation
The setup program will install the software
under the following directory.
The default drive and directory name
can be changed as desired.

C:\TEAC

[Press ESC key to Quit]

Figure 1

Choose AUTO SELECT if you are connecting the CD-ROM drive in a daisy-chain with an IDE hard drive or a sound card that is set on secondary IDE port address.

Choose SELECT I/O PORT if the IDE port from your sound card or IDE card, or an IDE connector that you connected the CD-ROM drive to uses a tertiary or quaternary address range. Use the UP↑ or DOWN↓ arrow key to make your selection, then strike ENTER. (See figure 2)

TEAC CD-ROM Software Installation

Please select the drive configuration
during Boot-up. If you want to select
I/O address Tertiary or Quaternary,
please select "SELECT I/O PORT"

[*] AUTO SELECT
[ ] SELECT I/O PORT

[ESC -> Backward]

Figure 2

AUTO SELECT will immediately start copying files from the CD-ROM installation disk to your hard drive.

SELECT I/O PORT will ask you to select the IDE port address and Master or Slave settings. Please select IDE port address according to your sound card or IDE card. Refer to the Installation Guide for CD-ROM drive Master/Slave settings.

TEAC CD-ROM Software Installation

Please select one of the following addresses.

[ ] Primary (1F0h)
[ ] Secondary (170h)
[*] Tertiary (1E8h)
[ ] Quaternary (168h)

[ESC -> Backward]

Figure 3

Use the UP↑ or DOWN↓ arrow key to make your selection, then strike ENTER. (See figure 3)

TEAC CD-ROM Software Installation

Select Master or Slave for CD-ROM drive.

[*] Master
[ ] Slave
[ ] Master & Slave

[ESC -. Backward]

Figure 4

Use the UP↑ or DOWN↓ arrow key to make your selection, then strike ENTER. (See figure 4)

TEAC CD-ROM Software Installation
The setup program is now ready to add
The following line in your AUTOEXEC.BAT file.

C:\DOS\MSCD.EXE /D:TEAC-CDI /M: 15

[*] Modify the file now
[ ] Do not modify

Figure 5

At the completion of file copy, the installation software will prompt you to modify the AUTOEXEC.BAT file on your hard drive. Please select "Modify the file now" to install the CD-ROM device driver to run your CD-ROM drive. Strike ENTER. (See figure 5)

A similar modification is also necessary for the CONFIG.SYS file on your hard drive. Please select "Modify the file now" in the following screen, strike ENTER. (See figure 6)

TEAC CD-ROM Software Installation
The setup program is now ready to add
the following line in your CONFIG.SYS file.

DEVICE=C:\TEAC\TEAC_CDI.SYS /D:TEAC-CDI

[*] Modify the file now
[ ] Do not modify

Figure 6

This will conclude the installation procedure.

TEAC CD-ROM Software Installation

TEAC CD_ROM Setup program is completed successfully.
Please reboot the system.

[Press RETURN key to Quit]

Figure 7

Remove the installation disk from the floppy disk drive at this point, and reboot your system.

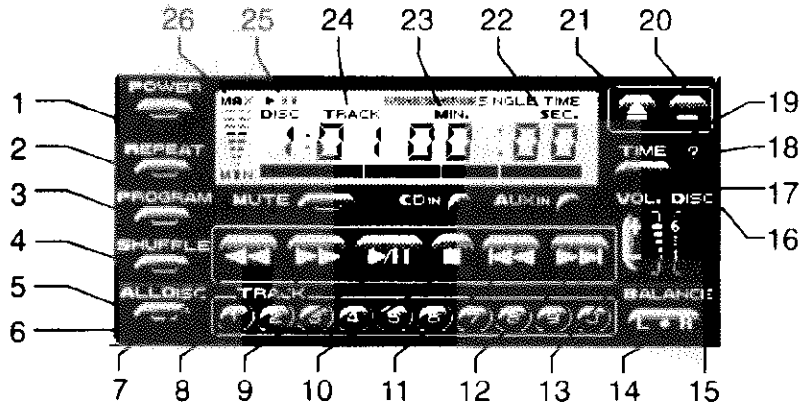
During system reboot, check for the following message to assure that the CD-ROM driver is loaded properly:

MSCDEX version 2.23 or higher
copyright © Microsoft Corp. 1986-1993 All rights reserved.
Drive X: = Driver TEAC-CDI unit 0
(where "X:" is the drive letter assigned to the CD-ROM drive.)

This message confirms that the CD-ROM drive is now properly installed. Otherwise please see Section 5-1, Trouble Shooting Tips.

This program will enable you to play audio CDs from a single disc CD-ROM drive, such as the TEAC CD-ROM drive, as well as a CD-ROM disc changer drive, which can load multiple discs. This program is designed to run under Windows 3.1X and Windows 95. The Windows {MCI} CD Audio device driver must be loaded in your system prior to running this program. Refer to the Microsoft Windows operations guide for information on how to load the {MCI} driver.

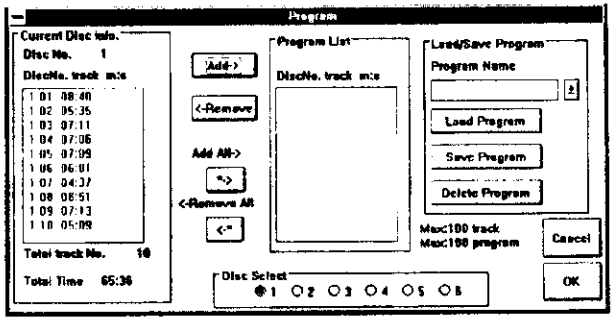
- To load the TEAC CD Player, run A:\WINDOWS\SETUP.EXE from File Manager in Windows 3.1X or click START and RUN under Windows 95.
- To run the TEAC CD Player, load an audio CD in the CD-ROM drive and double click on the "TEAC CD Player" icon.



1	POWER	Turns off the CD Player program.
2	REPEAT	Repeats entire disc from the beginning at the end of the current PLAY. Or it repeats a program sequence, if one has been programmed. Or, repeats random PLAY, when combined with SHUFFLE. To stop REPEAT, click REPEAT again or STOP.
3	PROGRAM	Programs up to 100 tracks per program sequence, or up to a maximum of 100 program sequences. The "Current Disc Info." displays the current disc number, all audio tracks and the elapsed time on a loaded audio disc. **To program:** Select the desired track and click "Add->" button to copy the selection to the"Program List". Click "Add All"->" button to copy all tracks from the "Current Disc Info " to the "Program List".

To remove a programmed track: Select the track to be removed from the "Program List" and click the "<-Remove" button. Click "Remove All<-*" to remove all tracks from the "Program List". When you are done with a program sequence, enter the desired program name in the "Program Name" box and click the "Save Program" button. To load a program, click on ▼ in the "Program Name" box and select the program name, then click the "Load Program" button.

Likewise, click the "Delete Program" button to delete a program name. "Disc Select 1 through 6" selects a desired disc in a CD-ROM disc changer drive (not applicable for a single disc CD-ROM drive).



4	SHUFFLE	Plays tracks in random sequence.
5	ALL DISC	Selects all audio discs on the CD-ROM disc changer drive (not applicable for a single disc CD-ROM drive).
6	TRACK	Selects a track by clicking on the appropriate number. For single digit track number, click on the number, then click PLAY. For dual digit track, click both numbers, one after another, then click PLAY.
7	REWIND	Rewinds 10 seconds, while playing.
8	FORWARD	Forwards 10 seconds, while playing.
9	PLAY/PAUSE	Plays from the beginning of a disc, a track or a programmed sequence. Clicking on PAUSE will stop CD-ROM play. Clicking on PAUSE again will resume play.
10	STOP	Stops playing
11	SKIP BACK	Skips back to the beginning of a current track, while playing. Skips back to the beginning of the previous track, when not playing.
12	SKIP FWD	Skips forward to the beginning of the next track

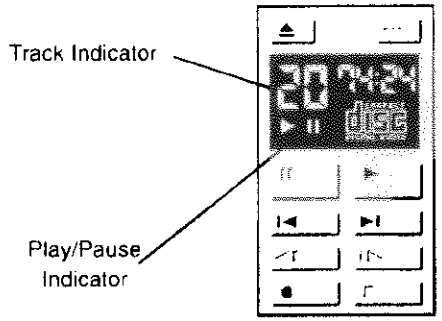
TEAC CD PLAYER FOR WINDOWS

13	VOL.	Adjusts the speaker volume. " +" to increase, "-" to decrease.
14	BALANCE	Adjusts the output volume. " L " to the left, " ●" to the center, "R" to the right.
15	DISC	On a CD-ROM disc changer drive, disc number 1 through 6 can be selected by a "+" or "-" in descending order (not applicable for a single disc CD-ROM drive).
16	CD IN/AUX IN	Controls the input devices.
17	MUTE	Turns off the speaker volume. Click MUTE again to turn the volume back on.
18	?	Displays information about this TEAC CD Player program.
19	TIME	Changes the time on the display panel between current PLAY time and elapsed time.
20	DISPLAY	Disables the TEAC CD Player program screen displaying on the computer monitor.
21	EJECT/INJECT	Ejects the drive disc tray or injects the drive disc tray.
22	SEC.	Displays the number of seconds for PLAY time or elapsed time.
23	MIN.	Displays the number of minutes for PLAY time or elapsed time.
24	TRACK	Displays the current track number in PLAY or selected track number.
25	DISC	Displays the current disc number in PLAY or selected disc number. This display always shows "1" for a single disc CD-ROM drive. Disc number will change depending on the selection of item # 15 "DISC function" on a CD-ROM disc changer drive.
26	MAX/MIN	Displays the audio output volume level.

TEAC CD PLAYER FOR DOS

The function of this program is to play your music CDs under DOS. At the set-up directory, type this command to load the TEAC CD Player program:

C:\TEAC>cdplayer



Using a Mouse

The TEAC CD Player can be operated by using a mouse. Be sure to load the mouse driver. "Click" on the corresponding screen icon (button) to select the desired function. The button functions are:

⁻ (end)	Ends this program.
▲ (eject)	Ejects or closes the tray.
‖ (pause)	Temporarily stops track play.
▶ (play)	Plays the track indicated on the track box, or resumes play following pause.
▶‖ (skip to next track)	Advances to play the next track.
‖◀ (skip to previous track)	Click **once** to return to the beginning of the current track. Click **twice** to return to the beginning of the previous track. Playback follows automatically.
▶▶ (fast forward)	Fast-forwards the current track for 10 seconds
◀◀ (rewind)	Rewinds the current track for 10 seconds.
■ (stop)	Stops playback of the track.
● (option)	Optional function (direct track select) button will appear on screen.

TEAC CD PLAYER FOR DOS

Using a Keyboard

The TEAC CD Player can be operated by keyboard. The buttons on the screen each correspond to the following keys:

— (end)	Q
▲ (eject)	E
II (pause)	Space
▶ (play)	P
▶ (skip to next track)	↓(cursor directional key)
◀ (skip to previous track)	↑(cursor directional key)
▶ (fast forward)	→(cursor directional key)
◀ (rewind)	←(cursor directional key)
■ (stop)	S
● (option)	F

If the Tab key is pressed, the cursor moves to the next position to the left. Striking the ENTER key at this point selects the function.

Selecting and Playing a Track (optional)
If the F key is pressed or the button (●) is clicked, numerals 1 to 0 and the +10 button appear between the time indicator and operating buttons. Press the key corresponding to the desired track number or click desired number button on the screen to start track play.

For selecting a track number higher than 10, use + 10 to specify that track number's "tens digit". Or use the keyboard to press the + key until the desired "tens digit" is reached before striking the desired "ones digit".

TROUBLE SHOOTING TIPS

Q1. System will not boot when CD-ROM drive is daisy-chained with a hard disk drive.
a1. Be sure your hard disk jumper is set to MASTER and CD-ROM jumper to SLAVE.
Please refer to the Installation Guide for the correct CD-ROM jumper setting. Consult with your hard drive manufacturer for the correct MASTER jumper setting.
Note: In some instances the CD-ROM drive can not be daisy-chained with a Conner hard drive when in Conner mode.
a2. Check if the interface cable is connected properly. It may be reversed.
Q2. The system hangs without displaying anything when the device driver is loaded during boot-up.
a1. There is a possibility that the TEAC device driver is having a conflict with other loaded drivers. Please check the position of the TEAC device driver statement or remark any driver which may be conflicting.
a2. The TEAC CD-ROM drive may be connected with another CD-ROM drive in the same system. Please re-install the TEAC CD-ROM installation software and select another address by going through the "SELECT I/O PORT" option.
Q3. "CD-ROM not found" message is displayed during loading the device driver.
a1. Please make sure the power cable and interface cable are connected properly.
a2. Please make sure there is no conflict with IDE card address (primary, secondary, tertiary etc.) and/or interrupt.
a3. In case CD-ROM drive is daisy-chained with a hard disk drive, please make sure the hard disk drive jumper is set to MASTER and the CD-ROM jumper is set to SLAVE. Please refer to the Installation Guide for the CD-ROM jumper setting and consult with the hard drive manufacturer for MASTER jumper setting.
a4. In case your IDE I/O address is set to tertiary/quartenary, please re-install the TEAC CD-ROM installation software to change the address by selecting "SELECT I/O PORT".
a5. There may be a case where TEAC CD-ROM drive will not work with an IDE controller card with cache.
Q4. CD-ROM drive will not be recognized by the system when MSCDEX.EXE is loaded.
a. Drive names specified in CONFIG.SYS and AUTOEXEC.BAT may not be matching. Please make sure that each statement has "/D:TEAC-CDI".
Q5. System does not recognize the CD-ROM drive with error message "Not enough drive letters".
a. There may be no more drive letters available. Please add or edit your CONFIG.SYS file with "LASTDRIVE=Z" statement.
Q6. The eject button will not open the tray.
a. Make sure the power is properly applied to the drive.

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